FACTSHEET

(pursuant to NAC 445A.236)

Permittee Name: NEVADA ENVIRONMENTAL RESPONSE TRUST
510 SOUTH 4TH STREET
HENDERSON, NV - 89015

Permit Number: NV0024228

Location: NEVADA ENVIRONMENTAL RESPONSE TRUST, CLARK
800 EAST ATHENS ROAD, HENDERSON, NV - 89011
LATITUDE: 36.08549302, LONGITUDE: -114.987543
TOWNSHIP: T21S, RANGE: R63E, SECTION: S33

Outfall / Well Num	Outfall / Well Name	Location Type	Well Log Num	Outfall City	Outfall State	Outfall Zip	Outfall County	Latitude	Longitude	Receiving Water
001	001 COMBINED INFLUENT SMPS&HLPS AT CWTP	Influent Structure		HENDERSON	NV	89015	CLARK	36.085486	-114.987707	LAS VEGAS WASH
002	002 BACKWASH WASTE PUMP	Internal Outfall		HENDERSON	NV	89015	CLARK	36.0872	-114.9870	LAS VEGAS WASH
003	003 TREATED EFFLUENT	External Outfall		HENDERSON	NV	89015	CLARK	36.0872	-114.9870	LAS VEGAS WASH
004	004 END OF MIXING ZONE AMBIENT WASH WATER QUALITY MONITORING POINT	Receiving Water - Ambient		HENDERSON	NV	89015	CLARK	36.0872	-114.90	LAS VEGAS WASH

General:

The Permittee, Nevada Environmental Response Trust (NERT), has applied for a permit to pump & treat the influent from the dewatering activities associated with the construction of Sunrise Mountain Weir & Historic Lateral Weir for the removal of Perchlorate. Further, the current treatment plan and application for permit by NERT is the Permittee's response to the requirement set forth by NDEP's Finding and Order issued on April 12, 2016. This Order, in turn, was a result of an ongoing Perchlorate Mitigation plan for the general area and currently permitted through the permit NV0023060. Bureau of Industrial Cleanup (BISC) identified a need to mitigate the anticipated accelerated discharge of Perchlorate to the Wash from the existing Perchlorate Plume under and by the Wash from dewatering activities during the above cited construction of Weirs.

The Permittee's proposed Pumping plan includes pumping water from several wells located and per project plan, in the vicinity of the Weir sites, and will be routed to two pump stations. Variable Frequency Drive controlled pumps (6 in total with up to 3,500 gallons per minute (GPM) capacity each) convey the water to a Strong Base Anion Exchange (SBA) system at Central Water Treatment Plant (CWTP) located nearer to the Sunrise Mountain Weir via 20" diameter HDPE piping. At CWTP, suspended solids with specific gravity > 2.0 are captured by hydro cyclones, followed by multi-media filters to further remove solid particles larger than 10 microns. The IX units which are connected in the flow sequence treat and remove Perchlorate from the water to below 18 micrograms/l concentration levels. The treated effluent is then co-mingled with part of the settled tail-waters from the hydro cyclones adding some of the TSS back, but only up to about a maximum TSS of 120 mg/l at the end of the pipe from the CWTP.

The treatment system, by design, has sufficient spare capacity for each of the key design elements to meet the project goal and to ensure uninterrupted operations synchronous with the Weir construction. At this time, all the logistical and operational concerns previously raised by the NDEP & BISC have been addressed as

expected through the current stage of design plans. The Permittee shall continue to work with the NDEP, BISC through the final design plan and O&M approval.

Discharge to the Las Vegas Wash from this facility shall commence only after the Permittee submits & obtains approval for 100% Design Documents and O&M manual.

Discharge Characteristics:

Flow: <= 9.94 MGD

Per Permittee's reported Water Quality data as sampled from three monitoring wells WMW6.55S,WMW6.15, and WMW5.58SI from January 2015 & February 2016 , in conjunction with the Mass-Balance Approach in translating the end of pipe concentrations, of Total Dissolved Solids (TDS), Manganese (Mn), and Boron (B) concentrations, to end of the pre-approved Ambient Water Quality Monitoring Point are as follows:

Perchlorate: Per the most recent data, as reported by the Permittee, the influent has Perchlorate in the range of 730 micrograms/liter to 1,900 micrograms/liter. The treatment process is designed to achieve Perchlorate removal to <= 18 micrograms/liter in the effluent.

TDS: <=4595 mg/l in the treated effluent with an expectation to achieve TDS <= 3000 mg/L at the end of approved reference end of mixing zone/ambient water quality monitoring point.

Mn: <=1.08 mg/l in the effluent & <= 0.200 mg/l at the downstream Ambient Water Quality monitoring point.

B: 2.94 mg/l in the effluent & <= 0.75 mg/l at the downstream Ambient Water Quality monitoring point.

Nitrate as N: Non Detect (ND) to 8.08 mg/l Nitrate/Nitrite as N: 0.19 J - 8.2 J

Oil & Grease: WMW sample result is 6.2 while all the other samples are ND.

TSS: <= 135 mg/l in the effluent from the treatment plant.

Total P is in the range of 0.035 J mg/l - 0.077 mg/l

Ammonia as N is Non Detect (ND)

Iron, Chromium (Total and Hexavalent), Total Kjeldahl Nitrogen (TKN), Sulfide and the rest of the toxic materials of concern as applicable for the designated waters are ND.

Receiving Water:

The treated effluent is received back by the Las Vegas Wash at Telephone Line Road.

Summary of Changes From Previous Permit:

This is a new permit.

Proposed Effluent Limitations:

The Proposed Effluent Limitations are as stipulated in the following tables:

Discharge Limitations Table for Combined Influent Flow To Cwtp To Be Reported Monthly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	Daily Maximum	<= 6900 Gallons per Minute (gal/min)		Intake	001	Continuous	METER
Solids, total suspended	Daily Maximum		M&R Milligrams per Liter (mg/L)	Intake	001	Twice Per Month	COMPOS
pH	Value		M&R Standard Units (SU)	Intake	001	Twice Per Month	GRAB
Solids, total dissolved	30 Day Maximum		M&R Milligrams per Liter (mg/L)	Intake	001	Twice Per Month	COMPOS
Perchlorate (ClO4)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Intake	001	Twice Per Month	COMPOS
Nitrogen, total	Daily Maximum		M&R Milligrams per Liter (mg/L)	Intake	001	Monthly When Discharging	COMPOS
Ammonia & ammonium- total	Daily Maximum		M&R Milligrams per Liter (mg/L)	Intake	001	Monthly When Discharging	COMPOS
Phosphorus, total (as P)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Intake	001	Monthly When Discharging	COMPOS

Discharge Limitations Table for Prior To Remix With Treated Effluent (Internal Monitoring Point) To Be Reported Monthly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	Monthly Total	M&R Gallons per Month (gal/mo)		Internal Monitoring Point	002	Continuous	METER
Perchlorate (ClO4)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Internal Monitoring Point	002	Biweekly	COMPOS
Solids, total suspended	Daily Maximum		M&R Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Biweekly	COMPOS

Discharge Limitations Table for Treated Effluent Discharge Pipe (External Outfall) To Be Reported Monthly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow, total	Monthly Total	M&R Million Gallons (Mgal)		Effluent Gross	003	Continuous	METER
Solids, total suspended	Daily Maximum		<= 135 Milligrams per Liter (mg/L)	Effluent Gross	003	Weekly When Discharging	COMPOS
pH, minimum	Daily Minimum		>= 6.5 Standard Units (SU)	Effluent Gross	003	Biweekly	GRAB
pH, maximum	Daily Maximum		<= 9.0 Standard Units (SU)	Effluent Gross	003	Biweekly	GRAB
Solids, total dissolved	Daily Maximum		<= 4595 Milligrams per Liter (mg/L)	Effluent Gross	003	Biweekly	COMPOS
Perchlorate (ClO4)	Daily Maximum		<= 18 Micrograms per Liter (ug/L)	Effluent Gross	003	Weekly When Discharging	COMPOS
Manganese, total recoverable	Daily Maximum		<= 1.08 Milligrams per Liter (mg/L)	Effluent Gross	003	Biweekly	COMPOS
Selenium, total (as Se)	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	003	Biweekly	COMPOS
Nitrogen, total	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Net	003	Biweekly	COMPOS
Ammonia & ammonium- total	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Net	003	Biweekly	COMPOS
Phosphorus, total (as P)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Net	003	Biweekly	COMPOS
Boron, total (as B)	Daily Maximum		<= 2.94 Milligrams per Liter	Effluent Gross	003	Biweekly	COMPOS

Discharge Limitations Table for Treated Effluent Discharge Pipe (External Outfall) To Be Reported Monthly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
			(mg/L)				

Discharge Limitations Table for End Of Mixing Zone Ambient Wash Water Quality Monitoring Point (Receiving Water - Ambient) To Be Reported Monthly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
pH, minimum	Daily Minimum		>= 6.5 Standard Units (SU)	Downstream Monitoring	004	Monthly When Discharging	GRAB
pH, maximum	Daily Maximum		<= 9.0 Standard Units (SU)	Downstream Monitoring	004	Monthly When Discharging	GRAB
Nitrogen, inorganic total	Single Grab	[1]	<= 20 Milligrams per Liter (mg/L)	Downstream Monitoring	004	Monthly When Discharging	GRAB
Nitrogen, nitrite total (as N)	Single Grab		<= 10 Milligrams per Liter (mg/L)	Downstream Monitoring	004	Monthly When Discharging	GRAB
Nitrogen, nitrate total (as N)	Single Grab		<= 100 Milligrams per Liter (mg/L)	Downstream Monitoring	004	Monthly When Discharging	GRAB
Solids, total dissolved	Single Sample	[2]	<= 3000 Milligrams per Liter (mg/L)	Downstream Monitoring	004	Monthly When Discharging	DISCRT
Manganese, total (as Mn)	Daily Maximum	[3]	<= 200 Micrograms per Liter (ug/L)	Downstream Monitoring	004	Monthly When Discharging	DISCRT
Boron, total (as B)	Daily Maximum		<= 750 Micrograms per Liter (ug/L)	Downstream Monitoring	004	Monthly When Discharging	DISCRT

Notes (Discharge Limitations Table):

1. Total Inorganic Nitrogen : 95% of Single Value Samples should be <= 20 mg/l
2. Total Dissolved Solids : 95% of S.V. samples <= 1900 mg/l
3. per NAC 445.1236 Standards for toxic materials applicable to designated waters.

Proposed Technology Based Effluent Limitations:

Perchlorate <= 18 micrograms/liter

Proposed Water Quality-Based Effluent Limitations:

WQBELs are set per NAC445A.1236 & NAC445A.2156 .

pH & TSS levels at the end of the CWTP per NAC445A.1236 to be achieved at the Outfall 003.

pH,TDS, Nitrogen Inorganic Total, Nitrite Total, Nitrate Total, Mn & Bo limits (per NAC445A.2156 &

NAC445A.1236) to be achieved at the approved end of the mixing zone (AWQMP-Outfall 004).

Rationale for Permit Requirements:

Effluent Water Quality Standards are set primarily with reference to NAC445A.1236 & NAC445A.2156.

The influent is characterized as chiefly consisting of existing surface waters and a smaller portion of shallow groundwater of the Las Vegas Wash located down gradient to BMI.

BISC identified and established the potential for accelerated discharge of Perchlorate from BMI complex, an adjoining Perchlorate Plume site, to the Wash. As such, the Permittee's Pump & Treat project goal is to fulfill the obligation to contain and treat the potential accelerated discharge of Perchlorate to the Wash, prior to releasing the effluent back into the Wash, per BISC Finding & Order Requiring Engineering Evaluation & Analysis dated April 12, 2016 from BISC. Per this Order, NERT is also under obligation to be ready to receive and treat the influent from dewatering activities associated with the Sunrise Mountain & Historic Lateral Weir Construction by June 1, 2017.

The Permittee is also expected to be in compliance with surface water quality standards as applicable for the stretches of the Wash per NAC445A.2156 & NAC445A.2158.

Permittee's outfall will be within few hundred feet of existing outfalls (American Pacific Corporation, NERT, Titanium Metals Corporation (two outfalls), and City of Henderson (CoH)) to the Wash. Further the existing NERT site for their BMI Complex ((#NV0023060) has an approved end of mixing zone point to be monitored, on the basis of mass-balance approach. Hence the request by the Permittee to incorporate same location, 5.5 miles upstream of the confluence of the Las Vegas Wash with Lake Mead, as reference downstream Ambient Water Quality Monitoring Point (AWQMP) is deemed acceptable.

Mn and Boron in the shallow groundwater of the Las Vegas Wash in the general area are the only two potential contaminants of concern in the effluent per the sampling done using the three monitoring wells (WMW6.55S,WMW6.15S, and WMW5.58SI). Permittee's request based on estimates arrived at by the mass-balance approach and data from the above mentioned outfalls and the potential contaminant discharge as identified from the existing monitoring well sampling is considered appropriate and statistically significant, and are accepted as requested with an expectation for the Permittee to continue to meet the reference water quality standards, per NAC 445A.1236, at the AWQMP.

Perchlorate limit <= 18 micrograms reflects the primary project goal of the current project which in turn is as stipulated by the Finding & Order issued on April.

Per Permittee's mass-balance analysis/mixing zone calculations, a TDS limit of 4595 mg/l in the effluent is expected to meet TDS <= 3000 mg/l S.V. at the AWQMP. Further, the Permittee's evaluation basis and methodology is deemed reasonable for arriving at permissible maximum Mn and B concentration which would ensure the existing higher water quality standards at the reference downstream ambient water quality monitoring point are not exceeded.

The treatment design is expected to slightly lower the Nitrate levels besides removing the Perchlorate. At this time TMDLs for Ammonia and Phosphorous are considered both not needed (Ammonia ND in the influent) and not applicable as the discharge is not considered as a new point source owing to the origin and destination of the influent. The rest of the monitoring parameters and limits are set per NAC445A.2156 to ensure the Water Quality Standards for the Wash are not negatively impacted.

The monitoring frequency is chosen and deemed appropriate to be able to monitor the effluent through each batch of the IX resin and Membrane filter use. The monitoring frequency of monthly when discharging for the AWQMP is deemed sufficient to identify any unexpected and unplanned exceedances so they can be addressed promptly.

By design, the proposed SBA Ion Exchange system is capable of selectively eliminate Perchlorate anions

and hence does not change the existing Ammonium concentration. Further the system has an additional potential also to eliminate Nitrates through the first circulation cycle of each resin batch. As such, the treatment system is considered not a new Point Source for Ammonium or Nitrogen pollutant discharge into the Wash.

Special Conditions:

SA – Special Approvals / Conditions Table

There are no Special Approval / Condition items

Flow:

The permitted discharge of treated effluent from this pump & treat system is limited to a maximum of 6900 GPM

Corrective Action Sites:

There is one active BISC site (BMI Complex) adjoining the general construction project. The Pump & Treat activities covered under the current permit are the direct result of and account for the potential Perchlorate discharge from this BMI Complex.

Wellhead Protection Program:

The project site is not within interference zone of any currently established Wellhead Protection Area.

Schedule of Compliance:

SOC – Schedule of Compliance Table

Item #	Description	Due Date
1	The Permittee shall submit and obtain approval for final Operations & Maintanance (O&M) manual, wet stamped by a Nevada licensed professional engineer, within 90 days of the permit effective date.	8/22/2017
2	Within 1 year of this permit issuance, all DMRs shall be submitted electronically through the Nevada NetDMR website: https://netdmr.ndep.nv.gov/netdmr/public/home/htm	5/24/2018
3	The permittee shall submit and obtain approval for final design documentation for the treatment facility, to be prepared and wet stamped by a Nevada Licensed Professional Engineer, prior to the commencement of the project construction and within 90 days of the permit effective date.	8/22/2017

Deliverable Schedule:

DLV– Deliverable Schedule for Reports, Plans, and Other Submittals

No records in Deliverable Schedule for Reports, Plans, and Other Submittals table

Procedures for Public Comment:

The Notice of the Division's intent to issue a permit authorizing the facility to discharge to surface waters of the State of Nevada subject to the conditions contained within the permit, is being sent to the **Las Vegas Review Journal** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing until 5:00 P.M. **5/4/2017** , a period of 30 days following the date of the public notice. The comment period can be extended at the discretion of the Administrator.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator of EPA Region IX or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted. Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determined to be appropriate. All public hearings must be conducted to accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination:

The Division has made the tentative determination to issue / re-issue the proposed 5-year permit.

Prepared by: **Sharada Maligireddy**
Date: **3/28/2017**
Title: **Staff Engineer**